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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/563,151 | 01/04/2006 | Naohisa Higashiyama | 283524US90PCT | 8389 |
| 22850 | 7590 | 08/20/2009 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | DUONG, THO V | |
| | | ART UNIT | PAPER NUMBER | |
| | | 3744 | | |
| | | NOTIFICATION DATE | DELIVERY MODE | |
| | | 08/20/2009 | ELECTRONIC | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/563,151 | HIGASHIYAMA ET AL. | |
| | Examiner | Art Unit | |
| | Tho v. Duong | 3744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 April 2009.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-36 is/are pending in the application.
 4a) Of the above claim(s) 6,10,11,13,14 and 23-34 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-5,7-9,12,15-22,35 and 36 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/4/06 and 3/23/07</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election/Restrictions

Claims 6,10-11,13-14 and 23-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/27/09.

Applicant's election with traverse of species A of figure 3 in the reply filed on 4/27/09 is acknowledged. The traversal is on the ground(s) that claim 1-34 are directed to evaporator, claim 35 is directed to a refrigeration cycle and claim 36 is directed to a vehicle having a refrigerator cycle including an evaporator. Therefore, these claims are part of overlapping search area which is no undue burden on the examiner to search all the claims. This is not found persuasive because the species are directed to the species as listed on page 2 of the Office Action sent 4/6/09. Each species are identified with different sets of figures and each set of species are independent and distinct which place a serious search burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

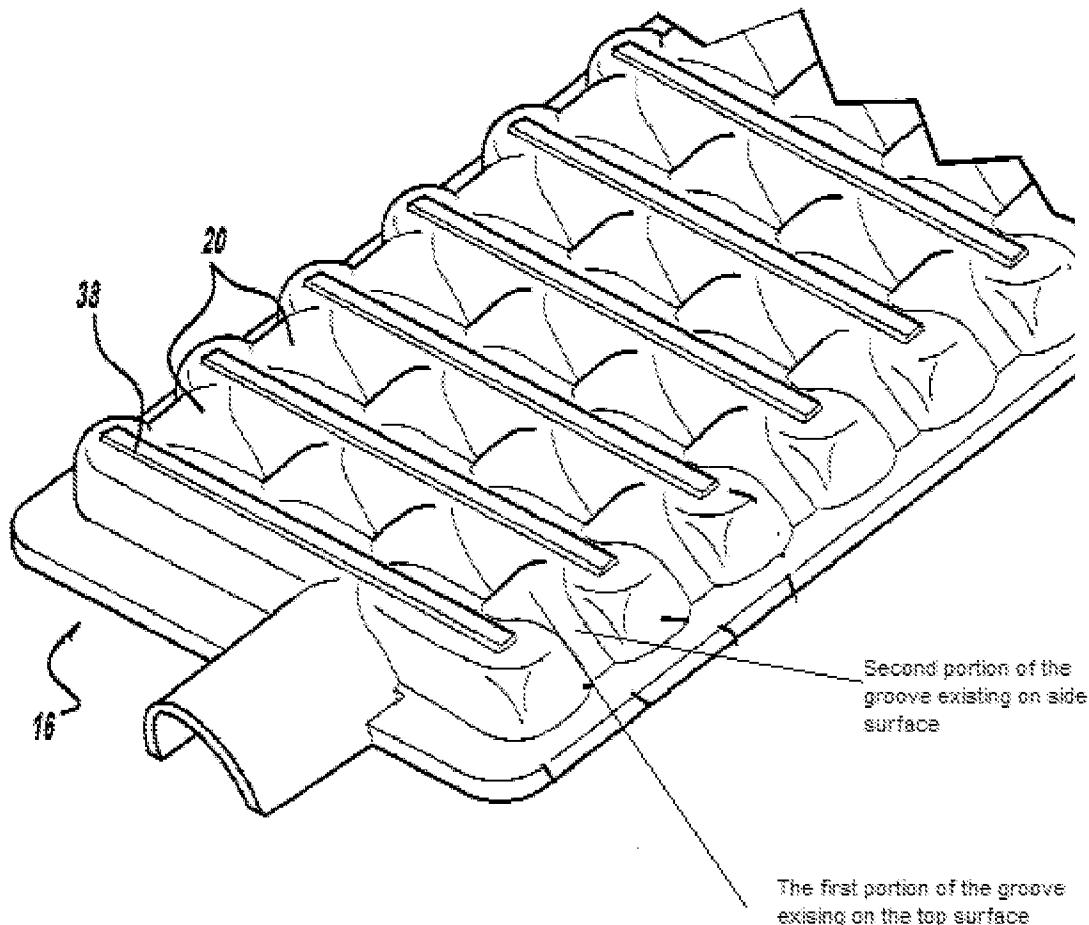
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5,7-9,12,15-18,20-22 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abell et al. (US 2002/0074113A1) in view of Voss et al. (US 5,685,366).

Abell discloses (figures 2-4) a heat exchanger which is capable to be employed as an evaporator, comprising a heat exchanger core including a plurality tubes (14); a lower tank disposed at a lower end of the core and having connected thereto lower ends of the tubes; the lower tank having a top surface (16), front and rear opposite side surfaces and a bottom surface (18) and being provided in each of the front and rear opposite sides portions thereof with grooves formed between respective lateral adjacent pairs of heat exchange tubes and extending from an intermediate portion of the top surface with respect to the forward or rearward direction to the side surface, which is capable for causing water condensate to flow there through; each of the groove include a first portion existing on the top surface of the lower tank, and the first portion has a bottom face gradually lowered from the intermediate portion of the top surface toward a front or rear side edge thereof; the top surface of the lower tank is highest at the intermediate portion and is so shaped as to lower gradually from the highest portion toward the side surface, and each of the grooves extends from the front or rear side of the highest portion of the lower tank top surface to the side surface of the lower tank; the first portion has the same depth over the entire length of the first portion; the first portion has groove width gradually increasing from a bottom of the groove toward an opening thereof; each of the groove has a flat bottom face (30); the second portion existing at a junction of the top surface of the lower tank and the side surface thereof, and the second portion has bottom face inclined downward forwardly or rearwardly outward. Regarding claims 9,15,17 and 20, Abell discloses the claimed invention except for the range as claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain the range as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable

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ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Abell does not disclose that the evaporator has tubes arranged in rows and employed in a refrigeration cycle having condenser and compressor. Voss discloses (figures 1-2) an evaporator having a plurality of tubes arranged in rows (10,12) employed in a refrigerant cycle comprising a condenser and a compressor for a purpose of forming a high efficiency, small volume evaporator employed in air conditioning system of a vehicle. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Voss's teaching in Abell's device for a purpose of forming a high efficiency, small volume evaporator that is employed in a air conditioning system of a vehicle.



Claims 1-5, 7-9, 12, 15-20 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laveran et al. (US 5,492,172) in view of Voss et al. (US 5,685,366). Laveran discloses (figures 1-7) a heat exchanger which is capable to be employed as an evaporator, comprising a heat exchanger core including a plurality tubes to be inserted into slots (5); a lower tank disposed at a lower end of the core and having connected thereto lower ends of the tubes; the lower tank having front and rear opposite side surfaces (3,4) and a bottom surface (2) and being provided in each of the front and rear opposite sides portions thereof with grooves (9)

formed between respective lateral adjacent pairs of heat exchange tubes and extending from an intermediate portion of the top surface with respect to the forward or rearward direction to the side surface, which is capable for causing water condensate to flow there through; each of the groove (9) include a first portion existing on the top surface of the lower tank, and the first portion has a bottom face gradually lowered from the intermediate portion of the top surface toward a front or rear side edge thereof; the top surface of the lower tank is highest at the intermediate portion and is so shaped as to lower gradually from the highest portion toward the side surface, and each of the grooves extends from the front or rear side of the highest portion of the lower tank top surface to the side surface of the lower tank; the first portion has the same depth over the entire length of the first portion; the first portion has groove width gradually increasing from a bottom of the groove toward an opening thereof (figure 3, groove 9 having narrower bottom); the second portion existing at a junction of the top surface of the lower tank and the side surface thereof, and the second portion has bottom face inclined downward forwardly or rearwardly outward; each of the groove includes a third portion existing on the side surfaces (3,4) of the lower tank, the third portion has a vertical bottom face. Regarding claims 9,15,17 and 20, Laveran discloses the claimed invention except for the range as claimed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain the range as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Laveran does not disclose that the heat exchanger has a header comprises of bottom surface and tubes arranged in rows and employed in a refrigeration cycle having condenser and compressor. Voss discloses (figures 1-2 and column

1, lines 12-18 and column 6, lines 55-65) an evaporator having header comprising of lower surface, upper surface, side surfaces; a plurality of tubes arranged in rows (10,12) employed in a refrigerant cycle comprising a condenser and a compressor for a purpose of forming a high efficiency, small volume evaporator employed in air conditioning system of a vehicle. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Voss's teaching in Laveran's device for a purpose of forming a high efficiency, small volume evaporator that is employed in an air conditioning system of a vehicle.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gowan (US 6,145,589) discloses a manifold for heat exchanger.

Moranne (US 4,582,127) discloses a tube end plate for heat exchanger.

Nakajima et al. (US 5,052,480) discloses a pipe for coolant condenser.

Laveran et al. (US 5,492,172) discloses a reinforced header plate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/
Primary Examiner, Art Unit 3744